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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,063	10/28/2005	Mitsutaka Iwasaki	Q90892	9155

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EXAMINER	
HSIEH, SHIH WEN	

ART UNIT	PAPER NUMBER
2861	

NOTIFICATION DATE	DELIVERY MODE
01/10/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@sughrue.com
kghyndman@sughrue.com
USPatDocketing@sughrue.com

Office Action Summary

Application No.

10/555,063

Applicant(s)

IWASAKI, MITSUTAKA

Examiner

shih-wen hsieh

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-12, 14, 15 and 17-20 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 13 is/are rejected.
- 7) ☒ Claim(s) 4 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10-28-05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 7, 11, 16 and 17 are objected to because of the following informalities:

Followings are corrections of a minor lack of antecedent basis problem:

In regard to:

Claim 7:

Line 5, please change "the air" into "air".

Claim 11, 16 and 17:

Line 6 (claim 11)/line 5 (claims 16 and 17), please change "the exterior" into "an exterior".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsunesuke (JP 06-328730, from IDS dated Oct. 28, 2005) in view of Mitchell US Pat. No. 5,793,389).

In regard to:

Claim 1:

Tsunesuke teaches in his fig. 5:

A liquid ejection apparatus comprising:

a liquid ejection head (30) for ejecting liquid, refer to [0052];

a cap member (31) for receiving waste liquid discharged from the liquid ejection head, refer to [0053]; and

a waste liquid tank for retaining the waste liquid, refer to [0046], Note: the waste ink tank specified in this paragraph ([0046]) is for example 1, example 1 using a cap rubber (17) and a piston pump (21 and 22). Cap member (31) is used for example 2, and a gear pump (32) is used. This gear pump equivalents to the piston pump used in example 1. A waste ink tank was not mentioned for example 2. However, the gear pump has ink suction opening and ink exhaust opening as shown in fig. 6. Therefore, it is inherently for example 2 to have a waste ink tank for the exhaust ink to go to;

a gear pump (32) for drawing the waste liquid from the cap member and introducing the waste liquid into the waste liquid tank, refer to the discussions to the waste liquid tank above.

The device of Tsunesuke **DIFFERS** from claim 1 in that it does not teach:
waste liquid backflow suppression means for suppressing backflow of the waste liquid to the cap member.

To this issue, Mitchell teaches in his fig. 1 a check valve (140), which equivalents to the waste liquid backflow suppression means in the instant application. To be more specific, Mitchell teaches a print head (30), an elastomeric curb (104), and a basin (106). The combination of the elastomeric curb (104), and a basin (106) forms a capping member. Generally a capping member consists of a body member, a lip member (the elastomeric curb in Mitchell's invention), and a cavity (basin in Mitchell's invention) surrounded by the lip member, refer to col. 2, line 64 to col. 3, line 21 and col. 4, lines 26-39.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include the check valve as taught by Mitchell for the purpose of allowing waste fluid (including ink and rinse water) can only flow one-way into a waste reservoir (in Mitchell's case is a waste receptacle).

Claim 2:

Mitchell in the device of Tsunesuke as modified in view of Mitchell further teaches:

wherein the waste liquid backflow suppression means is arranged between the waste liquid tank and the gear pump or between the gear pump and the cap member, Mitchell's drain conduits (116, 126 and 136) and waste conduit (100) correspond to silicon tube 24 in Tsunesuke's example 1, his valve (140) is disposed in between the

waste receptacle (102) and the vacuum aperture (135), which corresponds to the pumping means (for creating a suction pressure). This vacuum aperture is actually an extension of the vacuum source (156). Therefore, it is reasonable to say the check valve is disposed in between the waste liquid tank and a pumping device.

Claim 3:

Mitchell in the device of Tsunesuke as modified in view of Mitchell further teaches:

wherein the waste liquid backflow suppression means is formed by a valve device (140), refer to discussions to claim 1 above.

Claim 13:

The apparatus according to Claim 2, wherein the waste liquid backflow suppression means is formed by a valve device.

Rejection:

This claim is rejected on the basis as set forth for claim 3 discussed above.

Allowable Subject Matter

5. Claims 5-12, 14, 15 and 17-20 are allowed.
6. Claims 4 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

In regard to:

Claims 4 and 16:

The primary reason for the allowance of claims 4 and 16 is the inclusion of the limitation of wherein a liquid retainer that retains the liquid to be ejected and supplies the liquid to the liquid ejection head while being pressurized by pressurized air, and the gear pump generates the pressurized air for pressurizing the liquid retainer. It is this limitation found in each of the claims as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

Claims 5-7, 14 and 17:

The primary reason for the allowance of claims 5-7, 14 and 17 is the inclusion of the limitation of a gear pump for generating the pressurized air for pressurizing the liquid retainer, and air backflow suppression means that permits supply of the pressurized air only to the liquid retainer. It is this limitation found in each of the claims as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

Claims 8-12 and 15:

The primary reason for the allowance of claims 8-12 and 15 is the inclusion of the limitation of a liquid retainer having a waste liquid retainer portion for retaining the waste liquid drawn by the gear pump and receiving the air as pressurized air, and a liquid

retaining portion for retaining the liquid to be supplied to the liquid ejection head using the pressurized air. It is this limitation found in each of the claims as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

Claims 18-20:

The primary reason for the allowance of claims 18 and 20 is the inclusion of the limitation of a valve device including an inlet portion which receives the pressurized air, an outlet portion through which the pressurized air exits the valve device for pressurizing the liquid retainer, and a valve body that places the inlet and outlet portions in fluid communication with each other if the pressure of the pressurized air is not less than a predetermined reference level, and disconnects the inlet portion from the outlet portion if pressurized air returns from the outlet portion to the inlet portion. It is this limitation found in each of the claims as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record that makes these claims allowable over the prior art.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

JP 2006212845A, "Liquid storing container and liquid feeding apparatus" issued to Kobayashi, Aug., 2006 teaches a liquid storing container (20) having a pressurized

air inlet (13). The pressurized air is from outside without further specifying what type is this device for producing the pressurized air.

US 7,021,750, "Image forming device and valves that may be used in image forming devices" issued to Shibata et al., April 2006 teaches in their fig .1 a pressurized ink supply (106), which supplies pressurized ink to a pen (102). The pressurized air is from a fluid source (112), which supplies pressure air produced by a pressure pump.

USPGPUB 2005/023,1563 (application number: 11/019,665), "Valve device, pressure regulator, carriage, liquid ejecting apparatus and method for manufacturing valve device" issued to Fujishiro et al., Oct. 20, 2005 teaches in their fig. 13 an identical arrangement as that of the instant application, however, based on the filing date, it can not constitute as prior art for the instant application.

US 5,485,187, "Ink-jet recording apparatus having improved recovery device" issued to Okamura et al., Jan., 1996 teaches in their fig .1 a valve device (3), which can be a gear pump, which pressurizes air in an ink tank (7). A check valve (6) is installed in an ink supply line between ink tank (4) and ink tank (7).

US 4,558,326, "Purging system for ink jet recording apparatus" issued to Kimura et a., Dec. 1985 teaches an electromagnetic solenoid device such as the one (14, fig. 1), when this device is being activated, it will cover a vent hole (7) of an ink cartridge having an ink bag (5) contained therein. An air pump is activated at this time to pressurize ink inside the ink bag.

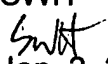
Application/Control Number:
10/555,063
Art Unit: 2861

Page 9

Any inquiry concerning this communication or earlier communications from the examiner should be directed to shih-wen hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 9/5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SWH

Jan. 2, 2008

SHIH-WEN HSIEH
PRIMARY EXAMINER
